

P027.03.CIP2+ - Application No. 10/665,882
Responsive to Office Action mailed April 14, 2006

page 9
May 4, 2006

REMARKS

Applicant thanks the Examiner for his thoughtful review of the application. The amendments to the specification and the claims are described below in the **Present Amendment**. The status of the present application is as follows:

- a. **Claims 1 – 5, 8 – 14, and 19 - 31** are pending;
- b. **Claims 1, 3, 5, 8 – 14, 19, 26, and 28 – 31** have been **Amended**; and
- c. **Claims 6 – 7 and 15 – 18** have been **Cancelled**.

I. PRESENT AMENDMENT

Independent **Claims 1** and **28** have been amended to particularly point out and distinctly claim the subject matter the Applicant regards as the invention. Specifically, those claims now recite that a top interface is created by a direct physical contact between a bottom surface of a conductive top electrode and a top surface of the multi-resistive state element and a bottom interface is created by a direct physical contact between a top surface of a conductive bottom electrode and a bottom surface of the multi-resistive state element. Additionally, the amendment make is clear that at least one treatment of at least one of the top interface or the bottom interface is primarily directed towards changing properties of the at least one interface and the at least one interface is changed by the at least one treatment. Support for the amendments can at least be found in **FIG. 7** of the **Drawings** and paragraph **0051** of the **Detailed Description**.

Dependent **Claims 3, 5, and 11** were amended to correct grammatical errors by adding the appositive "an" before the word "exposure."

P027.03.CIP2+ - Application No. 10/665,882
Responsive to Office Action mailed April 14, 2006

page 10
May 4, 2006

Dependent **Claims 8 – 10** were amended to depend from **Claim 3**. Dependent **Claims 11 – 14** were amended to depend from **Claim 5**. Support for the amendments can at least be found in paragraph **0053** of the **Detailed Description**.

Dependent **Claims 8, 10, 12, 14, and 19** were amended to particularly point out and distinctly claim the subject matter the Applicant regards as the invention. Specifically, the word "conductive" was added in regards to the top and bottom electrodes recited in those claims. Support for the amendments can at least be found in original independent **Claim 1**.

Dependent **Claim 26** was amended to particularly point out and distinctly claim the subject matter the Applicant regards as the invention. Specifically, to correct grammatical errors by replacing "the" with "by a" and replacing "of" with "by."

Dependent **Claims 29 and 30** were amended to change their dependency to independent **Claim 28**.

Dependent **Claim 31** was amended to provide proper antecedent basis for the terms "interface" and "treatment."

Paragraph **[0001]** of the **Specification** was amended to include issued U.S. Patent numbers for some of the application numbers listed in that paragraph.

No new matter was introduced by the amendments to the specification and the claims.

P027.03.CIP2+ - Application No. 10/665,882
Responsive to Office Action mailed April 14, 2006

page 11
May 4, 2006

ii. **INTERVIEW SUMMARY UNDER 37 C.F.R. §1.133 AND MPEP §713.04**

A telephonic interview with Examiner Allan Wilson was held on Tuesday, May 2, 2006 at around 3:30 PM EST. Prior to the interview, proposed amendments to independent Claim 1 were emailed to Examiner Wilson. In the interview, Morgan Malino and Trueman Denny discussed the proposed amendments with Examiner Wilson. After discussing the present application and the cited prior art, Examiner Wilson concluded that the proposed claims amendments overcome the rejections in view of the cited sections of the prior art and would consider the amendments in greater detail when an official response to the Office Action mailed **14 April 2006** was submitted by the Applicant. The Applicant wishes to sincerely thank Examiner Wilson for his time and attention in this application.

iii. **ARGUMENT**

a. **Rejection of Claims 1 – 31 under 35 U.S.C. § 102(e) (U.S. 6,759,249 to Zhuang)**

As amended herein, independent **Claims 1 and 28** are not anticipated under **35 U.S.C. § 102(e)** in view of the cited sections of *Zhuang* because all of the claim limitations are not explicitly or inherently disclosed in the cited sections of *Zhuang*. First, the interface between the amorphous PCMO layer 16b and the top electrode 18 (see *Zhuang* Col. 3, lines 34 – 44 and Fig. 1) do not inherently or explicitly include a top interface created by a direct physical contact between a top surface of the PCMO layer 16b and a bottom surface of the top electrode 18, the top interface including at least one treatment primarily directed towards changing properties of the top interface, and the top interface is change by the treatment.

Second, none of the cited sections of *Zhuang* inherently or explicitly disclose a bottom interface created by a direct physical contact between the bottom electrode 14 and the nano-crystal layer 16a (see Fig. 1 of *Zhuang*). Moreover, *Zhuang* does not inherently or explicitly disclose at least one treatment of the bottom interface primarily

P027.03.CIP2+ - Application No. 10/665,882
Responsive to Office Action mailed April 14, 2006

page 12
May 4, 2006

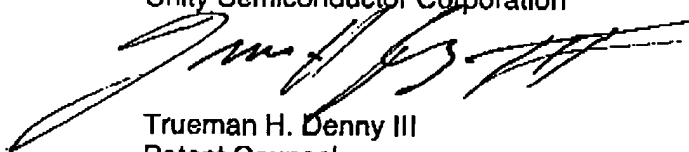
directed towards changing properties of the bottom interface and the bottom interface is change by the treatment. Consequently, for at least the reasons argued above, independent **Claims 1 and 28** are not anticipated by, are patentably distinct, and are non-obvious in view of the cited sections of *Zhuang*. Therefore, the rejections of independent **Claims 1 and 28** under 35 U.S.C. § 102(e) in view of the cited sections of *Zhuang* ought to now be withdrawn.

For at least the same reasons as argued above for independent **Claims 1 and 28**, dependent **Claims 2 – 5, 8 – 14, 19 – 27, and 29 – 31** inherit all of the limitations of their respective independent claims and are not anticipated by, are patentably distinct, and are non-obvious in view of the cited sections of *Zhuang*. Therefore the rejections of dependent **Claims 2 – 5, 8 – 14, 19 – 27, and 29 – 31** under 35 U.S.C. § 102(e) in view of the cited sections of *Zhuang* ought to now be withdrawn.

iv. CONCLUSION

Applicant now believes the present case to be in condition for allowance, and respectfully requests a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application the undersigned can be reached at (408) 737-7200 x124.

Respectfully submitted,
Unity Semiconductor Corporation



Trueman H. Denny III
Patent Counsel
Reg. No. 44,652

250 North Wolfe Road
Sunnyvale, CA 94085-4510